Surgeon General's Conference on the
Prevention of Preterm Birth

EPIDEMIOLOGICAL RESEARCH WORKGROUP

Co-Chairs

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Key Issues

- Preterm birth is the leading cause of infant death and severe neurocognitive and other long-term disabilities in the U.S.
- Preterm birth is on the rise in the U.S. and elsewhere
  - Changes in obstetric practice
  - Assisted Reproductive Technology (ART) and ovulation stimulation
  - Older maternal age

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Key Issues

- Wide racial disparities in preterm birth persist
- Causes of preterm birth multiple & poorly understood
  - Role of pollutants, micronutrients, psychosocial stress?
  - Genetic factors and gene-environment interactions probably important
- Few preventive available interventions have been shown to be effective

Short-term Goals

- Strengthen national vital statistics data collection, quality, and analysis by:
  - Purchasing vital statistics data from states
  - Supporting states to use revised birth certificates (including ART, Body Mass Index [BMI], and Women's Infants, & Children's [WIC] Program use)
  - Verifying and improving data quality & analysis
  - Training hospital personnel
  - Standardizing algorithm to estimate gestational age (GA)

Short-term Goals

- Investigate the causes of racial disparities
  - Physical environment
  - Social environment (neighborhood, community): measured and "perceived"
  - Psychological factors
  - Cultural patterns of providers, women/families
  - Access/quality of prenatal/other health care

Short-term Goals

- Investigate the cause of racial disparities
  - Gene-environment interactions
  - Acculturation of immigrants (e.g., diet, family structure)
  - Clinical management, including iatrogenic factors
  - Impact of intervention programs
  - Infection/inflammation, stress, vascular pathways

Short-term Goals

- Improve understanding of the roles of ovulation induction and ART
- Study effects of single embryo transfer
- Evaluate impact of ART insurance coverage
- Improve data linkage for ART, ovulation induction, and pregnancy outcomes

Short-term Goals

- Recognize heterogeneity of preterm birth
  - Base categories on known/suspected causes
  - Distinguish among medically indicated, preterm labor, preterm premature rupture of membranes (PPROM)
  - Consider other categories based on timing (acute vs. chronic), pathophysiology (inflammatory vs. vascular vs. hormonal)
  - Study differential outcomes of preterm birth by cause

Short-term Goals

- Understand factors (i.e., provider, client, medicolegal) influencing decision making about medically indicated late preterm births

Long-term Goals

- Improve hospital-based perinatal data
  - Support detailed clinical data collection
  - Link obstetric and neonatal databases
  - First trimester ultrasound dating (American College of Obstetricians and Gynecologists [ACOG] recommendation, insurance coverage)
- Physical science/engineering/biochemical approaches to assess GA and maturity

Long-term Goals

- Improve funding for epidemiologic, basic, translational, clinical, & health services research in preterm birth
- Establish trans-disciplinary preterm birth research centers
  - "De-silo" epidemiologic research
  - Build research capacity
    - Multidisciplinary training environments
    - Incentives for clinician-scientists (including allied health professionals)
  - Enhance research infrastructure, linked to community-based care settings

Long-term Goals

- Link data across pregnancies & reproductive health
- Study effects of public programs/policies and innovative models of prenatal care (e.g., Randomized Clinical Trials)

Long-term Goals

- Fund prospective cohort studies that combine epidemiologic, demographic, sociologic, nutritional, clinical, and biologic data
- Include physical and social environment
- Incorporate measures of placental function and biological mediators of parturition

Long-term Goals

- Integrate molecular techniques
  - Study DNA of trios (maternal, paternal, fetal)
  - "-omics" and epigenetics research
  - Gene-gene and gene-environment interactions